

What is Claimed Is:

1. A composite membrane comprising a polyamide layer on a porous support wherein the polyamide layer retains at least 15 micrograms of phosphorous per gram of polyamide after washing by passing pure water across the membrane for 24 hours at 25°C and a pressure of 70 pounds per square inch, and wherein the phosphorous comprises a phosphorous containing compound having solubility parameter of from about 15 to about 26 J^{1/2}cm^{-3/2}.

2. The membrane of Claim 1 wherein the polyamide layer retains at least 30 micrograms of phosphorous per gram of polyamide after washing.

3. The membrane of Claim 1 wherein the phosphorous containing compound comprises at least one of: phosphates, phosphites, phosphines, phosphine oxides, phosphonates, diphosphonates, phosphinates, phosphinites, phosphonites, pyrophosphates, pyrophosphoramides, phosphor amides, phosphorothionates, phosphorodithionates, and phosphoroamido thionates.

4. The membrane of Claim 1 wherein the phosphorous containing compound comprises a compound represented by the formula:



wherein Z is the same or different and is selected from: X, O-P-(X)₂, P(O)-X₂, (P(-X))_m-P-X₂, (O-P(-X))_m-O-P-X₂, (P(O)(-X))_m-P(O)-X₂, and (O-P(O)(-X))_m-O-P(O)-X₂,

P is phosphorous, O is oxygen, m is an integer from 1 to 5; Y is O or a non-bonded pair of electrons, X is the same or different and is selected from: R and R including one or

more oxygen linkage(s), and R is the same or different and is selected from H (hydrogen), and a carbon containing moiety.

5. The membrane of Claim 4 wherein Z is selected from C₁-C₈ aliphatic groups.

6. The membrane of Claim 4 wherein at least one Z is selected from an aromatic group.

7. The membrane of Claim 4 wherein Y is oxygen and Z is the same or different and is selected from R and R including one or more oxygen linkages; and R is the same or different and is selected from: H and C₁-C₁₂ containing moiety.

8. The membrane of Claim 7 wherein R is selected from C₁-C₈ aliphatic groups.

9. The membrane of Claim 7 wherein at least one R is selected from an aromatic group.

10. The membrane of Claim 4 wherein Y is a non-bonded pair of electrons and the phosphorous containing compound comprises a compound represented by the formula:

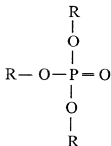


wherein Z is the same or different and is selected from R and R including one or more oxygen linkages; and R is the same or different and is selected from: H and C₁-C₁₂ containing moiety.

11. The membrane of Claim 10 wherein R is selected from C₁-C₈ aliphatic groups.

12. The membrane of Claim 10 wherein at least one R is selected from an aromatic group.

5 13. The membrane of Claim 7 wherein the phosphorous containing compound comprises a compound represented by the formula:



14. The membrane of Claim 13 wherein R is selected from C₁-C₈ aliphatic groups.

10 15. The membrane of Claim 13 wherein at least one R is selected from an aromatic group.

16. The membrane of Claim 10 wherein Z is the same or different and is selected from O-R and R.

15 17. The membrane of Claim 16 wherein at least one R is selected from an aromatic group.